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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,562	01/29/2004	Gerd Knappe	304-820	5090

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EXAMINER	
ZHU, JOHN X	
ART UNIT	**PAPER NUMBER**
2858	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/767,562	KNAPPE ET AL.	
	Examiner	Art Unit	
	John Zhu	2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 December 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 December 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Response to communications filed on 12/14/2006.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the "evaluating means" and "gate control voltage" as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1,3-12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

With respect to independent claims 1,8 and 12, the original disclosure does not state that the sensors are connected to the drain of the MOSFET transistors. As the drawings indicate a NMOS transistor, the sensing elements are in fact connected to the source of the transistors.

Claims 3-7, 9-11 are rejected as they depend from the independent claims above.

Claim Rejections - 35 USC § 103

5. Claims 1, 3, 6, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirata (4,713,528) in view of Yasumura (6,496,389 B1).

With respect to claim 1, Hirata discloses a circuit arrangement comprising switching means (Fig. 2, element 45), control means (control circuit 51) for sensors and evaluating means (microcomputer 55) both electrically connected to switching means.

Hirata does not disclose several inductively operating sensors but rather only one. However, duplication of parts has no patentable significant unless a new and unexpected result is produced. See MPEP 2144.04. In the present case, it is well known that a stovetop has plurality of heating elements, thus, it would have been obvious to include the invention to have a plurality of heating circuits (elements 43 and 49) for the purpose of controlling all the heating elements. Hirata furthermore does not disclose a single switch MOSFET per sensor whereby the sensor is connected to the drain of the MOSFET, but rather a BJT switching transistor (element 45).

Yasumura discloses it is well known in the art to replace BJT switching elements with MOSFETs (Column 14, lines 65-67, MOSFETs inherently possess low drain-source resistance). Thus, BJT 45 would be replaced with a NMOS that has a drain connected to the sensor (41).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hirata to include replacing the BJT with MOSFET as taught by Yasumura for the purpose of enhanced efficiency of the MOSFETs (Column 15, line 5).

With respect to claim 3, Hirata further discloses a first resonant capacitor (element 39) being connectable by switch means parallel to the sensor 41.

With respect to claims 6 and 7, Hirata further discloses the sensors are saucepan detection sensors in a cooking zone (Fig. 3, block "IS SAUCEPAN PRESENT?"). Although Hirata does not explicitly disclose the sensor is a wire loop having a few turns, it is well known in the art that heating elements of such kind are made of wire loops having few turns.

With respect to claim 8, a method claim reciting the structure of claim 1, Hirata further discloses evaluating signals generated by the sensors with the evaluating means (column 4, lines 13-20), and readjusting the control voltage of transistor at a prescribed frequency which is constant with varying temperature (column 4, lines 3-5).

6. Claims 4 and 5, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirata and Yasumura as applied to claims 3 and 8 above respectively, and further in view of Weigand (4,731,591).

With respect to claim 4, Hirata as modified does not teach a second resonant circuit capacitor parallel to the first circuit capacitor, with switches provide in order to switch on and off different resonant circuit capacitors.

Weigand discloses a second resonant capacitor 16 parallel to the first capacitor 15 with a switch 17 provided to switch on and off different resonant circuit capacitors.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hirata to include the second resonant capacitor

and switch of Weigand for the purpose of changing the resonator circuit frequency (Column 2, lines 48-51).

With respect to claim 5, the modified references do not explicitly teach producing a difference of at least 8% between measuring frequencies.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to arrive at the difference of at least 8% by routine experimentation (see MPEP 2144.05), in order to provide for a greater span of frequencies at which measurement may be performed.

With respect to claims 9 and 11, Hirata as modified does not explicitly teach two different capacitances are connected in parallel and are operated with two measuring frequencies.

Weigand discloses a resonant circuit with two parallel capacitors (15 and 17) and are operated with two measuring frequencies (controlled by switch 17).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hirata to include the parallel capacitor and switch of Weigand for the purpose of changing the resonator circuit frequency (Column 2, lines 48-51).

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hirata, Yasumura and Weigand as applied to claim 9 above, and further in view of Smolenski et al. (6,350,971).

With respect to claim 10, Hirata as modified does not disclose establishing the presence of a saucepan by averaging over numerous measurements and calculating a probability.

Smolenski discloses an inductive method, wherein by averaging (Column 5, lines 29-31) over numerous measurements a probability is calculated and by means (processor 170) thereof it is established whether or not a vessel 120 is present.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hirata to include the detection method of Smolenski for the purpose of detecting whether a vessel has moved on a cooktop surface.

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hirata in view of Yasumura and further in view of Weigand.

With respect to claim 12, Hirata discloses a circuit arrangement comprising switching means (Fig. 2, element 45), control means (control circuit 51) for sensors and evaluating means (microcomputer 55) both electrically connected to switching means.

Hirata does not disclose several inductively operating sensors but rather only one. However, duplication of parts has no patentable significant unless a new and unexpected result is produced. See MPEP 2144.04. In the present case, it is well known

that a stovetop has plurality of heating elements, thus, it would have been obvious to include the invention to have a plurality of heating circuits (elements 43 and 49) for the purpose of controlling all the heating elements. Hirata does not disclose a single switch MOSFET per sensor whereby the sensor is connected to the drain of the MOSFET, but rather a BJT switching transistor (element 45), or two different capacitors are connected in parallel to sensor and are operable with different measuring frequencies.

Yasumura discloses it is well known in the art to replace BJT switching elements with MOSFETs (Column 14, lines 65-67). Thus, BJT 45 would be replaced with a NMOS that has a drain connected to the sensor (41).

Weigand discloses a resonant circuit with two parallel capacitors (15 and 17) and are operated with two measuring frequencies (controlled by switch 17). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hirata to include replacing the BJT with MOSFET as taught by Yasumura for the purpose of enhanced efficiency of the MOSFETs (Column 15, line 5), and further obvious to modify Hirata to include the parallel capacitor and switch of Weigand for the purpose of changing the resonator circuit frequency (Column 2, lines 48-51).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Zhu whose telephone number is (571) 272-5920. The examiner can normally be reached on M-F, 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Hirshfeld can be reached on (571) 272-2168. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

John Zhu
Examiner
Art Unit 2858

JZ

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